

RECORDS OF REPTILES FROM TONGA

B. J. GILL* AND D. R. RINKE**

*AUCKLAND INSTITUTE AND MUSEUM

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Abstract. Records of reptiles from Niuafu'ou, Niuatoputapu, the Vava'u group, Late, 'Eua and 'Ata, Kingdom of Tonga, are presented, based on 167 voucher specimens collected between 1969 and 1990. *Emoia murphyi* is reported from Niuafu'ou, Niuatoputapu, and Vava'u. *E. pheonura*, the recently described sibling species to *E. cyanura*, is reported from Niuafu'ou, Niuatoputapu, Vava'u, Ha'apai, Tongatapu, 'Eua and 'Ata based on the above vouchers and re-identification of specimens in the Auckland Museum collection. The iguana *Brachylophus fasciatus* is reported from Vava'u and Tongatapu.

Tonga has a small reptile fauna comprising an iguana and several species of geckos, skinks and marine reptiles (sea-snakes and turtles). One gecko (*Lepidodactylus euaensis*), and a skink (*Tachygia microlepis*) that is known only from the two type specimens collected last century, are endemic. The other species are more widely distributed.

Recent records of the distribution of reptiles in the Tongan group have been given by Gill (1987, 1988, 1990) and Rinke (1986). In this paper we present further records based on the following museum specimens:

- (1) Two iguanas collected in Vava'u by E.W. Dawson in 1969 and now in the National Museum of New Zealand, Wellington (NMNZ).
- (2) Specimens collected on Niuatoputapu by W.P. Rogers in 1971 and now in NMNZ.
- (3) Reptiles collected on 'Eua and Niuafu'ou in 1983 and 1984 by D.R. Rinke and now in the Zoologisches Forschungsinstitut und Museum Alexander Koenig, Bonn, West Germany (ZFMK).
- (4) A specimen of *Emoia murphyi* collected on Okoa I (Vava'u group) in September 1989 by B.J. Gill and now in the Auckland Institute and Museum, New Zealand (AIM).
- (5) Specimens of *Lepidodactylus euaensis* collected on 'Eua in September 1989 by D.R. Rinke and now in AIM.
- (6) Specimens collected on Niuafu'ou in February 1990, on Late in March 1990, and on 'Ata in April 1990 by D.R. Rinke and now in AIM.

Field notes by D.R. Rinke and some sight records by us both are also reported. In the list that follows, the date of collection given is the key to which of the above collecting efforts is involved. Specimens of *Cryptoblepharus* are referred to *eximius* rather than *poecilopleurus* on advice from G.R. Zug. All specimens held at AIM and listed as *Emoia cyanura* in Gill (1987, 1988) have been re-examined to check for specimens of the sibling species *E. pheonura*, described by Ineich (1987).

SYSTEMATIC LIST

Banded Iguana *Brachylophus fasciatus*

Vava'u group: Ha'akio, Vava'u Island — male (NMNZ P160), female (NMNZ P161), coll. 12 Sep. 1969.

Tongatapu: Single live iguanas have been caught near Vaini (June 1989) and at Veitongo (May 1990), and seen by D.R. Rinke.

Oceanic Gecko *Gehyra oceanica*

Niuafo'ou: ZFMK 41628-31, coll. 1984.

Niuaatoputapu: Falehau — NMNZ P234-8, coll. 1971.

'*Eua*: Funga Fonua (170 m asl) — ZFMK 42047, coll. 1984; 'Ohonua — ZFMK 41114-5, coll. 1983; Hango — ZFMK 41108, 42050, coll. 1984; 'Ufilei — ZFMK 41109-13, coll. 1983.

Late: AIM H1345, coll. 1990.

Mournful Gecko *Lepidodactylus lugubris*

Niuafo'ou: ZFMK 41632-4, coll. 1984. AIM H1343, coll. 1990.

Niuaatoputapu: Falehau — NMNZ P222-33, coll. 1971.

'*Eua*: 'Ohonua — ZFMK 40769-80, coll. 1984; Hango — ZFMK 42051-5, coll. 1984.

'*Eua* Gecko *Lepidodactylus euaensis*

'*Eua*: Funga Fonua (170 m asl) — ZFMK 42046, 42048-9, coll. 1984; Mo'unga Te'e Moa (c. 200 m asl) — AIM H1318-20, coll. 1989.

Pelagic Gecko *Cyrtodactylus pelagicus*

'*Eua*: 'Ohonua — ZFMK 40764, coll. 1984.

Snake-eyed Skink *Cryptoblepharus eximius*

Niuafo'ou: ZFMK 41625, coll. 1984. AIM H1336, coll. 1990.

Late: AIM H1346-8, coll. 1990.

'*Eua*: 'Ohonua — ZFMK 40762-3, coll. 1984; 'Ufilei — ZFMK 41603-11, coll. 1984.

'*Ata*: AIM H1351-3, coll. 1990.

Moth Skink *Lipinia noctua*

Niuafo'ou: ZFMK 41618-24, coll. 1984. AIM H1337, coll. 1990.

Niuaatoputapu: Falehau — NMNZ P219, coll. 1971.

'*Eua*: 'Ohonua — ZFMK 40748, 42061-3, coll. 1984.

Blue-tailed Skink *Emoia cyanura*

Niuafo'ou: ZFMK 41615, 41617, coll. 1984. AIM H1339-42, 1344, coll. 1990.

Niuaatoputapu: Falehau — NMNZ P217, coll. 1971.

Late: AIM H1349-50, coll. 1990.

'*Eua*: 'Ohonua — ZFMK 40749-61, coll. 1984; 'Ufilei — ZFMK 41587-93, 41595-602, coll. 1984.

'*Ata*: AIM H1354, coll. 1990.

Cryptic Skink *Emoia pheonura*

Niuafo'ou: ZFMK 41612-4, 41616, coll. 1984. AIM H1338, coll. 1990.

Niuatoputapu: Falehau — NMNZ P218, coll. 1971.

'*Eua*: 'Ufilei — ZFMK 41594, coll. 1984.

'*Ata*: AIM H1355-8, coll. 1990.

Dandy Skink *Emoia trossula*

Tongatapu: Has been seen occasionally by D.R. Rinke.

'*Eua*: 'Ohonua — ZFMK 41102, coll. 1983; Hango — ZFMK 41103-7, coll. 1984;

'Ufilei — ZFMK 41101, coll. 1983, ZFMK 41585-6, coll. 1984.

Pacific Black Skink *Emoia nigra*

Niuafo'ou: ZFMK 41626, coll. 1984. AIM H1327-31, coll. 1990.

Niuatoputapu: Hahake — NMNZ P221, coll. 1971.

Murphy's Skink *Emoia murphyi*

Niuafo'ou: ZFMK 41627 (juv.), coll. 1984. AIM H1332-5, coll. 1990.

Niuatoputapu: Falehau — NMNZ P220, coll. 1971.

Vava'u group: Okoa I — AIM H1303, coll. 1989. A small heavily spotted *Emoia*, probably of this species, was seen by B.J. Gill in September 1989 in a clearing at the summit of Mt. Talau, Vava'u I.

Table I summarises the distribution of lizards in the Tongan archipelago based on this paper and the records of Gill (1987, 1988, 1990). In addition, we note that an unpublished report by the late J.R.H. Gibbons ("Recent sightings of the elusive *Tachygia microlepis* of Tonga?", November 1985, 6 pages) indicates that he recorded the geckos *Hemidactylus garnotii* and *Hemiphyllodactylus typus* on both Tongatapu and 'Eua. We have not recorded these species in Tonga.

NOTES ON *EMOIA MURPHYI*

In the sample of six adults of *Emoia murphyi* — all those listed above except ZFMK 41627 — the snout-vent lengths were 55-71 mm, the rows of scales at mid-body numbered 27-29 (mode 28) and the number of lamellae under the fourth toe was 64-75. This agrees with the meristics of 14 *E. murphyi* from "Samoa and Tonga islands" given by Brown & Gibbons (1986) as 26-32 scale rows and 59-82 lamellae. Our specimens match closely in coloration four specimens labelled as *E. murphyi* from the Smithsonian Institution (USNM 82951-4) which have 27 or 28 scale rows and 64-71 lamellae. (These USNM specimens were collected by H.C. Kellers in October 1930 from "Niaufou Island" which we take to be a misspelling of "Niuafo'ou".)

Burt (1930) described *Emoia murphyi* from one specimen (thought to be immature) collected on Savai'i, Western Samoa. It was 73 mm from snout to vent, with 30 rows of scales at mid-body and 84 fourth toe lamellae. We can find no further

Table 1. Distribution of terrestrial reptiles on islands or island groups of the Tongan archipelago, based on the records in this paper and in Gill (1987, 1988, 1990).

	Nf*	Nt	V	L	H	T	E	A
<i>Brachylophus fasciatus</i>			+			o		
<i>Gehyra oceanica</i>	+	+	+	+	+	o	+	
<i>G. mutilata</i>					+	+		
<i>Lepidodactylus lugubris</i>	+	+	+		+	+	+	
<i>L. euaensis</i>							+	
<i>Cyrtodactylus pelagicus</i>			+		+		+	
<i>Cryptoblepharus eximius</i>	+		+	+	+	+	+	+
<i>Lipinia noctua</i>	+	+	+			+	+	
<i>Emoia cyanura</i>	+	+	+	+	+	+	+	+
<i>E. pheonura</i>	+	+	+		+	+	+	+
<i>E. trossula</i>			+		o	o	+	
<i>E. nigra</i>	+	+						
<i>E. murphyi</i>	+	+	+					
Number of species recorded	8	7	10	3	8	9	9	3

* Nf — Niufo’ou, Nt — Niuatoputapu, V — Vava’u, L — Late, H — Ha’apai, T — Tongatapu, E — ’Eua, A — ’Ata, + — voucher specimen (seen by B.J. Gill), o — sighting only (by D.R. Rinke and/or B.J. Gill).

published information about this species or its distribution, but clearly it extends from Samoa to the northern Tongan islands of Niufo’ou, Niuatoputapu and Vava’u.

These lizards have heavily speckled, predominantly grey, dorsal surfaces with no longitudinal stripes. The undersurfaces in life are bright lime green, which fades to blue or yellow in preservative. It is an arboreal species of plantations and the forest edge.

NOTES ON THE *EMOIA CYANURA* SPECIES GROUP

Ineich (1987) examined a large sample of “*Emoia cyanura*” from French Polynesia and distinguished two forms on the basis of colour and scalation, one of which he described as a new syntopic sibling species, *E. pheonura*.

One of us (B.J. Gill) has examined 51 Tongan specimens of the *cyanura* species group held at AIM. Of the specimens listed in Gill (1987, 1988) as *E. cyanura*, the following prove to be *E. pheonura*: H1001, H1003-4, H1006-9, H1012, H1178, H1180-1, H1186-8 and H1190. The rest are *E. cyanura* in the restricted sense.

Twenty-six of the 51 specimens at AIM can be separated as *pheonura* by the absence of fusion of scales on the mid-dorsal line. These also tend to have white thighs, a frontoparietal spot and a pale, brown tail. Twenty-four specimens (*cyanura*) have fused mid-dorsal scales (often only a few), dark thighs and a tendency for there to be no frontoparietal spot and a dark blue tail. H1185, with dark thighs and no dorsal scale fusion, could be either form. The two forms are approximately equally represented in this sample which comprises small numbers from throughout the Tongan archipelago.

In the ZFMK collection there are 29 specimens of the *cyanura* species group collected by D.R. Rinke from two localities on 'Eua. These contain only one specimen of *pheonura*. More work is needed to explore the relative abundance of these two forms in Tonga and to confirm that they are separate species rather than polymorphs of one species.

AIM H1344, from Niuafo'ou, is dark-coloured with a coppery sheen and lacks dorsal stripes. This is presumably the "bronze morph" of Crombie & Steadman (1986), and is the only such example from Tonga that we have seen. Some of the dorsal scales are fused, so it is assumed to be *cyanura* rather than *pheonura*.

DISCUSSION

All the non-endemic terrestrial reptiles of Tonga could owe their presence in Tonga, and their distribution within the archipelago, entirely to accidental or deliberate transport by humans. Polynesians first colonised Tonga just over 3,000 years ago (Davidson 1979). However, species with the most restricted distribution within the Tongan archipelago, such as *Emoia nigra* apparently limited to Niuafo'ou and Niuatoputapu, and *E. murphyi* apparently restricted to those islands plus the Vava'u group, are the least likely to have been distributed by man.

The small species of *Emoia* (*E. cyanura* and *E. pheonura*) seemed to be at highest density on Late, which lacks feral chickens (*Gallus gallus*) and larger predatory skinks. On Niuafo'ou, where *Emoia nigra* preys on its smaller congeners, the latter were most abundant in plantations. On 'Ata, where feral chickens are abundant, the small emoias were only moderately common. *Emoia trossula* was scarce on Tongatapu, compared with 'Eua where it is more common. This may be due to predation by cats, which are more numerous on Tongatapu, or to the greater use of insecticides on the latter. On Niuafo'ou, *Emoia nigra* is almost entirely ground-dwelling. It was most common on islands in the crater lake. On the main island it occurred in both forest and plantations. On 'Ata, *Cryptoblepharus eximius*, one of only three reptile species found, was not confined to shoreline habitats, as on other islands, but also occurred with Blue-tailed Skinks on the cliffs up to 60-80 m a.s.l.

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